INTEGRATED RISK ASSESSMENT OF SELECTED MYCOTOXINS IN FRESH PRODUCE AND DERIVED FOOD PRODUCTS THROUGHOUT THE FOOD SCHIAN, AFFECTED BY CLIMATE CHANGE AND GLOBALIZATION

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Fruits and vegetables are an important part of a healthy diet, and their consumption is expected to increase in the future because of health promotion. However, climate change and globalization will have an effect on their food safety (Paterson and Lima 2010).
In order to maintain the desired level of food safety in Europe, it is necessary to explore new food contamination pathways and approaches to deal with these projected changes.
An important food safety problem is the presence of fungi and mycotoxins. (Semi) dried plants are mainly associated with mycotoxins but recently fresh produce are associated with new emerging mycotoxins.

The objective of the research is to develop a farm-to-fork risk assessment model to predict the mycotoxin concentration in fresh and derived products in order to predict future risks due to climate change and growing import of foods from third countries.

An initial inventory is made of relevant moulds and mycotoxins which occur on fresh produce and derived food products. Therefore data of mycotoxin concentration on dried plant, fresh and derived products is collected. This is done in cooperation with ICPC partners (e.g. Egypt, Brazil, and India) and is extended with European and national data. The data is obtained by looking both at scientific articles and grey literature.
To collect additional information a screening is performed with a developed LC/MS method. We screened for ochratoxin A, fumonisin B1, B2, B3, alternariol, alternariol monomethyl ether, tenuazonic acid in tomatoes, onions, sweet bell peppers and soft red fruits.
The MS parameters were tuned for each mycotoxin and both positive and negative electrospray conditions were checked and it was decided to screen for the mycotoxins in two separated runs (positive and negative electrospray run). The 7 mycotoxins can be screened in one sample in a relative short time of 1 hour. Three solvents were tested for extraction optimalization and repeatability, LOD and LOQ were determined.

Reference List

Paterson, R.R. and Lima, N. (2010) How will climate change affect mycotoxins in food? Food Research International 43, 1902-1914.